one and the same Colour and degree of Colour from one end of this line to the other. I delineated therefore in a Paper the perimeter of the Spectrum FAPGMT, and in trying the third Experiment of the first Book, I held the Paper so that the Spectrum might fall upon this delineated Figure, and agree with it exactly, whilst an Assistant whose Eyes for distinguishing Colours were more critical than mine, did by right lines $\alpha\beta$, $\gamma\delta$, $\varepsilon\zeta\&c.$ drawn cross the Spectrum, note the confines of the Colours that is of the red M$\alpha\beta$F of the orange $\alpha\gamma\delta\beta$, of the yellow $\gamma\varepsilon\zeta\delta$, of the green $\varepsilon\eta\theta\zeta$, of the blue $\eta\iota\kappa\theta$, of the indico $\iota\lambda\mu\kappa$, and of the violet λGAμ. And this operation being divers times repeated both in the same and in several Papers, I found that the Observations agreed well enough with one another, and that the rectilinear sides MG and FA were by the said cross lines divided after the manner of a musical Chord. Let GM be produced to X, that MX may be equal to GM, and conceive GX, λX, ιX, ηX, εX, γX, αX, MX, to be in proportion to one another, as the numbers 1, $\frac{8}{9}$, $\frac{5}{6}$, $\frac{3}{4}$, $\frac{2}{3}$, $\frac{3}{5}$, $\frac{9}{16}$, $\frac{1}{2}$, and so to represent the Chords of the Key, and of a Tone, a third Minor, a fourth, a fifth, a sixth Major, a seventh, and an eighth above that Key: And the intervals Mα, $\alpha\gamma$, $\gamma\varepsilon$, $\varepsilon\eta$, $\eta\iota$, $\iota\lambda$, and λG, will be the spaces which the several Colours (red, orange, yellow, green, blue, indico, violet) take up.

Now these intervals or spaces subtending the differences of the refractions of the rays going to the limits of those Colours, that is, to the points M, α, γ, ε, η, ι, λ, G, may without any sensible Error be accounted proportional to the differences of the sines of refraction of those rays

rays having one common sine of incidence, and therefore since the common sine of incidence of the most and least refrangible rays out of Glass into Air was, (by a method described above) found in proportion to their sines of refraction, as 50 to 77 and 78, divide the difference between the sines of refraction 77 and 78, as the line GM is divided by those intervals, you will have 77, $77\frac{1}{8}$, $77\frac{1}{5}$, $77\frac{1}{3}$, $77\frac{1}{2}$, $77\frac{2}{3}$, $77\frac{7}{9}$, 78, the sines of refraction of those rays out of Glass into Air, their common sine of incidence being 50. So then the sines of the incidences of all the red-making rays out of Glass into Air, were to the sines of their refractions, not greater than 50 to 77, nor less than 50 to $77\frac{1}{8}$, but varied from one another according to all intermediate Proportions. And the sines of the incidences of the green-making rays were to the sines of their refractions in all proportions from that of 50 to $77\frac{1}{5}$, unto that of 50 to $77\frac{1}{2}$. And by the like limits above-mentioned were the refractions of the rays belonging to the rest of the Colours defined, the sines of the red-making rays extending from 77 to $77\frac{1}{8}$, those of the orange-making from $77\frac{1}{8}$ to $77\frac{1}{5}$, those of the yellow-making from $77\frac{1}{5}$ to $77\frac{1}{3}$, those of the green-making from $77\frac{1}{3}$ to $77\frac{1}{2}$, those of the blue-making from $77\frac{1}{2}$ to $77\frac{2}{3}$, those of the indico-making from $77\frac{2}{3}$ to $77\frac{7}{9}$, and those of the violet from $77\frac{7}{9}$ to 78.

These are the Laws of the refractions made out of Glass into Air, and thence by the three Axioms of the first Book the Laws of the refractions made out of Air into Glass are easily derived.

EXPER.